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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/735,260	12/12/2000	Ronald J. Parise	97-1775-A	7673

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EXAMINER
PARSONS, THOMAS H

ART UNIT	PAPER NUMBER
1741	10

DATE MAILED: 01/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/735,260	PARISE, RONALD J.	
	Examiner	Art Unit	
	Thomas H Parsons	1741	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 November 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *19-21* is/are allowed.

6)☒ Claim(s) *1-18 and 22-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *26 March 2002* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Response to Amendment

1. This is in response to the amendment filed 19 November 2002. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

2. The objection to claim 19 because of minor informalities has been **withdrawn** in view of Applicants' amendment.

Claim Rejections - 35 USC § 112

3. The rejection of claims 1-18 and 22-27 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention has been **withdrawn** in view of Applicants' amendment.

4. The rejection of claims 19-21 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention has been **withdrawn** in view of Applicants' amendment.

Claim Rejections - 35 USC § 102

5. The rejection of claims 1-7, 9-14, 16, 18, 22, 24-27 under 35 U.S.C. 102(b) as being anticipated by Chang et al. (5,405,680) has been **withdrawn** in view of a new grounds of rejection.

Claim Rejections - 35 USC § 103

6. The rejection of claims 15 and 23 under 35 U.S.C. 103(a) as being unpatentable over Chang et al. as applied to claims 1 and 22, respectively, above, and further in view of Stearns (3,053,923) has been **withdrawn** in view of a new grounds of rejection.

7. The rejection of claim 19 under 35 U.S.C. 102(b) as being anticipated by Stearns has been **withdrawn** in view of Applicants' amendment.

8. The rejection of claims 20 and 21 under 35 U.S.C. 103(a) as being unpatentable over Stearns as applied to claim 19 above, and further in view of Gomez (4,251,290) has been **withdrawn** in view of Applicants' amendment.

9. The rejection of claims 8 and 17 under 35 U.S.C. 103(a) as being unpatentable over Chang et al. as applied to claims 1, 10, 11, and 16 above, and further in view of Altman (4,147,040) has been **withdrawn** in view of a new grounds of rejection.

Response to Arguments

10. Applicant's arguments with respect to claims 1-18 and 22-27 have been considered but are moot in view of the new ground(s) of rejection set forth below.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claim 1-7, 9-14, 16, 18, 22, 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (5,405,680), and further in view of Smith et al. (4,751,115).

Claims 1: Chang et al. in Figures 3 and 4 disclose a method for radiating thermal energy from a terrestrial position into deep space comprising arranging a thermal energy transmitting material (coating 14) over an object (window 12 of automobile 10); and positioning the thermal energy transmitting material so that a transmitting surface thereof faces deep space, wherein the object includes objects (vehicles and building structures) on the surface of the earth and proximate thereto (abs.; col. 1: 10-12; col. 3: 3-6, 37-41; col. 3: 51-col. 4:3; col. 5: 8-11; and col. 7: 14-25).

The material of Chang et al. would obviously have provide the claimed spectral surface properties as the material of Chang et al. has the same physical characteristics as that disclosed in the instant case (col. 3:49-51; col. 4:5-8; col. 5:12-20; and col. 6:32-37 which discloses a material characterized by high thermal emissivity in the 8-13 μm wavelength region).

Chang et al. do not disclose that the thermal energy transmitting material is configured and removably positioned to remove waste heat proximate the object.

Smith et al. disclose in Figure 2 a sun screen 10 having sun reflection and solar heat absorption characteristics that is configured and removably positioned (i.e. the film is in the form

of a sunscreen that can be installed or disassembled) to reduce interior heat within an object (an automobile) by removing waste heat (abs.; col.1: 47-54; col. 3: 38-41 and 59-63; and col. 4: 4-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Chang et al. by providing the sunscreen of Smith et al. because both are concerned with reflection of solar radiation and Smith et al. teach a sunscreen that would have provided an inexpensive means for reducing the interior temperature of an automobile by employing combined solar reflective and sun absorption characteristics in the form of a screen that may be readily installed or disassembled thereby reducing maintenance cost associated with damage to the interior of the car due to the sun.

Claim 2: The Chang et al. combination does not disclose that the object is covered with the transmitting material only at intervals during which the object is not in direct sunlight.

Chang et.al. disclose on col. 9: 58 that in several embodiments "...a semimetal has been employed as a constituent of coatings to provide a mechanism for reflecting incident solar radiation in the infrared spectrum. However, for some applications, the semimetal may not be needed or used...a coating is provided which comprises the selective emissive material but does not include the semimetal material." This provides a suggestion that the coating may be used in applications where there is not sunlight or direct sunlight (e.g. shade).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have expected the method of the Chang et al. combination to provide for covering the object with the transmitting material only at intervals during which the object is not in direct sunlight in light of the teaching of Chang et al.

Claims 3 and 11: Chang et al. on col. 5:32-38 disclose that the material has a normal spectral emissivity ranging from about 0.8 to about 1.0.

Claims 4, 5, 12 and 13: The material of Chang et al. would obviously have provided the claimed absorptivity because the material of Chang et al. has the same spectral surface properties as those disclosed in the instant case.

Claims 6 and 14: Chang et al. disclose that the spectral band is selected from the group consisting of about 8 μm to about 13 μm (col. 3:41-51; col. 4: 5-9; col. 6: 32-37; and col. 7: 40-41).

Claims 7 and 16: Chang et al. disclose that the material comprises a suspension of a spectral substance (semimetal selective emissive material and or a semimetal) in a polymer base (paint).

Claims 9 and 18: The material of Chang et al. would obviously have provided a coating that reflects incoming thermal infrared electromagnetic energy because the material of Chang et al. is similar in composition and has the same surface spectral properties as that claimed in the instant case:

Claim 10: The rejection is as applied, argued and disclosed above in claim 1, and incorporated herein.

Claim 22: Chang et al. in Figure 3, 4 and 13 disclose that the thermal energy transmitting material is positioned in thermal contact with a heat transfer surface (automobile, vehicle, houses building structure) (abs.; and col. 3:3-6).

Claims 24-27: Chang et al. disclose that the object is an automobile and a vehicle (which would encompasses an airplane, a house or building structure). These structures would

obviously be located between about an altitude of flying aircraft and about the surface of the earth, as set forth in claims 24 and 25 and between an altitude of about 60,000 feet from the surface of the earth and about the surface of the earth, as set forth in claims 26 and 27.

13. Claims 15 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. in combination with Smith et al as applied to claims 10 and 22 above, and further in view of Stearns (3,053,923).

Claim 15: The rejection of claim 10 is as applied, argued, and disclosed above, and incorporated herein.

The Chang et al. combination does not disclose that the thermal transmitting material is disposed within a pressure cell having a pressure less than ambient.

Stearns in Figure 4 discloses thermal transmitting material (58 and 64 of aluminum) disposed within a pressure cell having a pressure less than ambient (gas-tight, transparent envelop 72).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of the Change et al. combination by using the pressure cell of Stearns because Stearns discloses a pressure cell that would have prevented hot junctions from being cooled by convection thereby improving the overall performance of the method.

Claim 23: The rejection claims 10 and 22 are as applied, argued, and disclosed above, and incorporated herein.

The rejection is as set forth above in claim 15.

14. Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. as applied to claims 1, 3, 7 and 10, 11, and 16 above, and further in view of Altman (4,147,040).

Chang et al. and Smith et al. are as applied, argued, and disclosed above, and incorporated herein.

The Chang et al. combination does not disclose spectral substance selected from the group consisting of carbon black acetylene soot, camphor soot, zinc sulfide, silver chloride, potassium chloride, and zinc selenide.

Altman disclose a spectral substance (infrared radiation transmitting material) selected from the group consisting zinc sulfide and zinc selenide (col. 4:42-47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Chang et al. combination by using the spectral substance of Altman because Altman teaches a spectral substance that would have provide for a continuous, uninterrupted and unobscured flow of heat form a subject surface to a heat sink and through a heat conduit thereby improving the overall method for cooling a subject thermal load that emit infrared radiation.

Allowable Subject Matter

15. Claims 19-21 are allowable over the prior art of record.

Reasons for Indicating Allowable Subject Matter

16. The following is a statement of reasons for the indication of allowable subject matter:

The claimed invention, as set forth in independent claim 19, requires a first junction surface in thermal contact with one of deep space and solar energy wherein the first surface has a high thermal emissivity toward the atmosphere of the earth. In contrast, the closest prior art teaches an upper surface (i.e. a first junction surface) composed of a material having a high absorptive power for the solar spectrum and a low thermal emissivity.

Therefore, a search of the prior art of record failed to reveal or explicitly teach, alone or in combination, what is instantly claimed: in particular,

An electricity generating device for use in an environment having an ambient pressure, comprising a first junction surface in thermal contact with one of deep space and solar energy, said first surface having a high thermal emissivity toward the atmosphere of the earth; a second junction surface in thermal contact with an object located at about a surface of the earth or proximate thereto; and an electricity generating cell intermediate the first and second junction surfaces; wherein the first and second junction surfaces are at a temperature different from each other producing a thermoelectric potential between the first and second junction surfaces.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

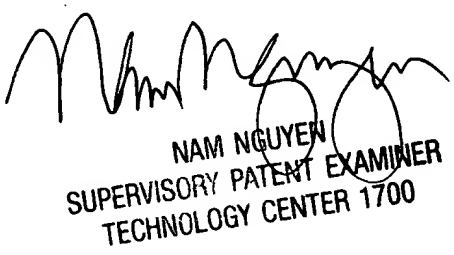
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H Parsons whose telephone number is (703) 306-9072. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (703) 308-3322. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Thomas H Parsons
Examiner
Art Unit 1741

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January 15, 2003